GCSE
STATISTICS
8382/1F

Foundation Tier Paper 1

Mark scheme

June 2023

Version: 1.0 Final

2 3 6 G 8 3 8 2 / 1 F / M S

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

`Examiners should consistently apply the following principles.

Diagrams

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

Responses which appear to come from incorrect methods

Whenever there is doubt as to whether a student has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the student. In cases where there is no doubt that the answer has come from incorrect working then the student should be penalised.

Questions which ask students to show working

Instructions on marking will be given but usually marks are not awarded to students who show no working.

Questions which do not ask students to show working

As a general principle, a correct response is awarded full marks.

Misread or miscopy

Students often copy values from a question incorrectly. If the examiner thinks that the student has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

Further work

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

Choice

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

Work not replaced

Erased or crossed out work that is still legible should be marked.

Work replaced

Erased or crossed out work that has been replaced is not awarded marks.

Premature approximation

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Continental notation

Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the student intended it to be a decimal point.

Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Statistics papers, marks are awarded under various categories.

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.
M dep	A method mark dependent on a previous method mark being awarded.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
oe	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
[a, b]	Accept values between a and b inclusive.
[a, b)	Accept values $a \leq$ value $< b$
3.14…	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
Use of brackets	It is not necessary to see the bracketed work to award the marks.

Q	Answer	Marks	Comments
1	$\frac{3}{8}$	B1	

Q	Answer	Marks	Comments
2(a)	Qualitative	B1	

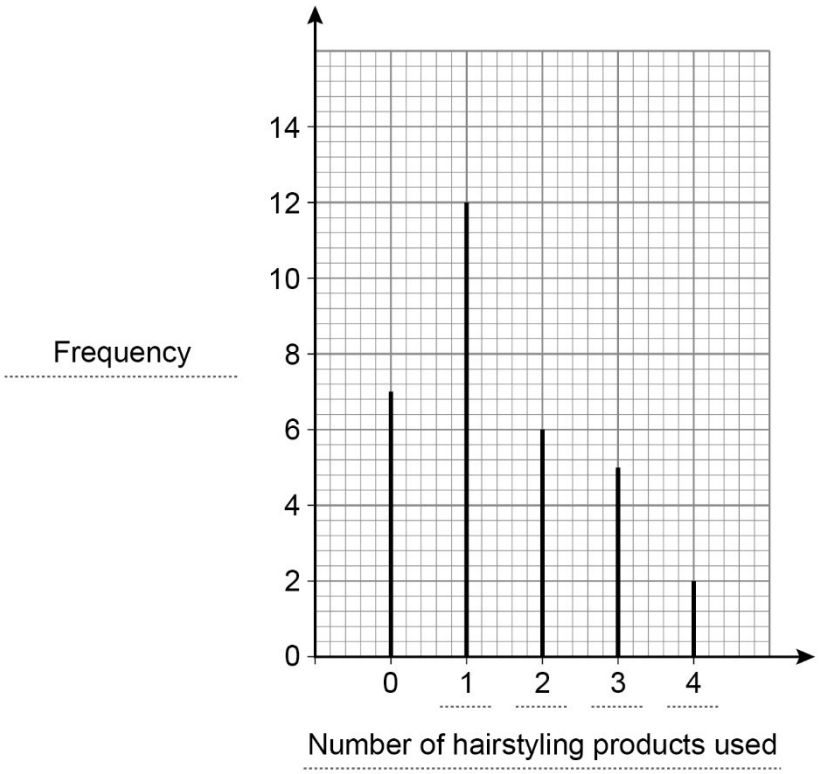
Q	Answer	Marks	Comments
2(b)	Stem-and-leaf	B1	

Q	Answer	Marks	Comments
3	C	B1	

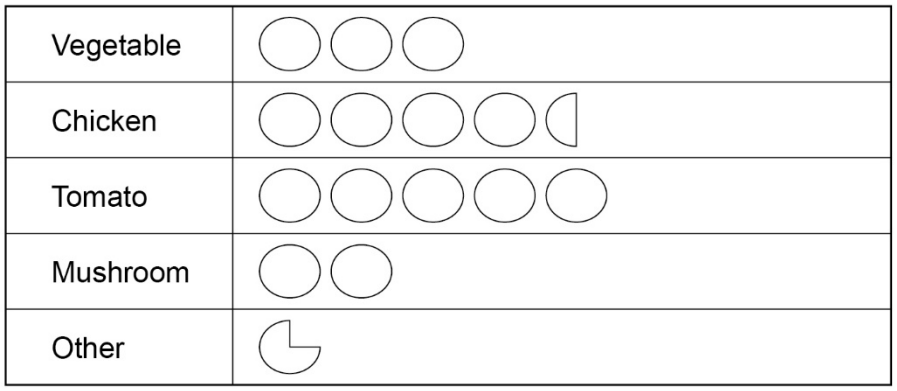
Q	Answer	Marks	Comments
4(a)	Ask a range of year groups or Ask different classes	B1	oe
	Additional Guidance		
	Must give an improvement, do not allow a criticism, eg it's only one class / only PE / only Y7 / only one school / only one teacher	B0	
	Ask the whole school / Do a census	B1	
	Ask all the students (at her school)	B1	
	Ask different genders	B1	
	Ask a wider range of people/students Ask more people / Have a larger sample size	B1 B1	
	Ask random groups Ask a random group Ask a random sample / Random sampling	B1 B0 B0	
	Use a questionnaire	B0	

Q	Answer	Marks	Comments
4(b)(i)	1	B1	

Q	Answer	Marks	Comments
4(b)(ii)	$6 + 5 + 2$ or 13 or $7 + 12 + 6 + 5 + 2$ or 32	M1	
	$\frac{13}{32}$	A1	SC1 0.41 or 0.406 or better or 41% or 40.6% or better
	Additional Guidance		
	Ignore attempts to simplify after correct answer seen		

<table>
<tr><th>Q</th><th>Answer</th><th>Marks</th><th>Comments</th></tr>
<tr><td rowspan="6">4(b)(iii)</td><td>Correct numbering of horizontal axis</td><td>B1</td><td>1, 2, 3, 4</td></tr>
<tr><td>Suitable labels on both axes</td><td>B1</td><td>Frequency oe on y-axis
and
Number of hair products oe on x-axis</td></tr>
<tr><td>All vertical lines correct and lines equally spaced</td><td>B2</td><td>B1 at least two vertical lines of correct height
$\pm\frac{1}{2}$ small square tolerance</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">
</td><td></td></tr>
<tr><td colspan="2">Bars can score a maximum of B3</td><td></td></tr>
<tr><td colspan="2">Condone number or students for y-axis label
Condone hair or product for x-axis label</td><td></td></tr>
</table>

Q	Answer	Marks	Comments
5(a)	Any two valid conclusions eg Tomato is (the most) popular and other is the least popular	B2	B1 one valid conclusion eg more customers chose tomato (than any other soup) or chicken and tomato are much more popular than any others or mushroom was neither the most or least popular soup or other types of soup was the least popular
	Additional Guidance		
	Accept any clear indication for type of soup, eg T for tomato		
	Ignore any non-contradictory or irrelevant statements, eg Tomato is the most popular Other is the least popular There are 61 customers		B2
	Tomato is the mode		B1
	Chicken is the second most popular		B1
	Mushroom is the second least popular		B1
	Most people prefer the options that are there		B1
	The customers prefer chicken soup to vegetable soup		B1
	Mushroom is the least popular of the options given/shown Mushroom is not (very) popular Mushroom is the least popular		B1 B1 B0
	Most customers chose tomato (making it the most popular)		B0
	Lots of customers chose tomato		B0
	20 liked tomato Only 3 liked other / Not many people liked soups not listed		B0 B0
	There are 61 customers		B0

<table>
<tr><th>Q</th><th>Answer</th><th>Marks</th><th>Comments</th></tr>
<tr><td rowspan="8">5(b)</td><td>Correct key</td><td>B1</td><td></td></tr>
<tr><td>Fully correct pictogram</td><td>B3ft</td><td>ft their key
B2 for 3 correct rows
B1 for 2 correct rows</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">Key ◯ represents 4 customers

</td><td></td></tr>
<tr><td colspan="2">Do not award B3 for a fully correct pictogram if one of the rows is vertically misaligned
Condone circles that are vertically misaligned if they are misaligned by less than one full circle</td><td></td></tr>
<tr><td colspan="2">Mark intention for ¼, ½ and ¾ circles and for size</td><td></td></tr>
<tr><td colspan="2">Condone incorrect orientation of part circles but do not allow parts to be separate</td><td></td></tr>
<tr><td colspan="2">Ignore any shading</td><td></td></tr>
</table>

Q	Answer	Marks	Comments
5(c)(i)	No timeframe or doesn't specify eating soup for lunch	B1	oe
	Additional Guidance		
	A corrected question		B1
	You drink soup (not eat it)		B0

Q	Answer	Marks	Comments
5(c)(ii)	Overlapping options eg 2 times is repeated	B1	oe
	No option for 0	B1	oe
	Additional Guidance		
	A corrected response section		B2
	The response boxes should give a time frame (if time frame is not already mentioned in part 5(c)(i))		B1
	It doesn't cover all possible answers		B1
	The numbers overlap		B1

Q	Answer	Marks	Comments
5(d)(i)	convenience (sampling)	B1	accept judgement sampling or opportunity sampling
	Additional Guidance		
	Condone convenient (sampling)		

Q	Answer	Marks	Comments
5(d)(ii)	any valid reason	B1	eg convenient or easy (to set up) or quick (to do) or no planning for sample or inexpensive or less time consuming
	Additional Guidance		
	Immediate response		B1
	In person so they can ask questions In person		B1 B0
	Time consuming		B0
	Efficient without giving a reason		B0
	Real answers		B0
	People will answer more honestly (as it's face-to-face)		B0

Q	Answer	Marks	Comments
5(d)(iii)	a valid reason eg It's only one day / It's only lunch / It's only one cafe	B1	oe eg it's not random or not everyone has a chance to be asked
	Additional Guidance		
	People asked might be in family/friendship groups (and therefore eat soup as often as each other)	B1	
	Pria only asks the first 25 people Pria asks the first 25 people	B1 B0	
	No variety (of people)	B0	
	It won't give a range of answers (ambiguous)	B0	
	It could be biased / Unrepresentative without giving a reason	B0	

Q	Answer	Marks	Comments
6(a)(i)	It's a question (not a statement) or It's not a statement (it's a question)	B1	oe
	Additional Guidance		
	It should be a prediction	B1	
	Not a theory	B1	
	He's asking (instead of stating)	B1	
	It can't be tested	B1	
	It should be an estimate	B0	

Q	Answer	Marks	Comments
6(a)(ii)	I will have more subscribers (after the prize draw)	B1	oe
	Additional Guidance		
	Ignore any numbers quoted, eg Nik will get 1000 more subscribers (after the prize draw)	B1	
	More people will join my channel	B1	
	The more people who share my channel the more subscribers	B0	

Q	Answer	Marks	Comments
6(b)	Median = 2400 or Mode = 1300	B1	
	(170 + 400 + 1300 + 600 + 2400 + 1300 + 1300 + 3800 + 2400 + 4100 + 4100 + 3500 + 18800 + 4300) ÷ 14 or 48 470 ÷ 14	M1	oe allow one error or omission
	Mean = [3462, 3462.143]	A1	
	Yes and 2 or 3 correct averages and no incorrect averages or Nik's friend is incorrect and 2 or 3 correct averages and no incorrect averages	A1	
	Additional Guidance		
	Full marks cannot be awarded if an average is incorrect, eg Median = 2550, Mode = 1300, Mean = 3462, Nik is correct	B1M1A1A0	
	Median = 2400, Mode = 1300, Nik's friend is wrong	B1M0A0A0	
	Ignore any reference to spread		

Q	Answer	Marks	Comments
6(c)(i)	18 800 is a lot larger than the other values	B1	oe
	Additional Guidance		
	Only value above 10 000, the rest are below 5000		B1
	Only value above 10 000, the rest are below		B0
	Only value above 10 000		B0
	Only value in the 10 000s		B0
	It has more digits		B0

Q	Answer	Marks	Comments
6(c)(ii)	Valid reason in context	B1	eg a well-known influencer shared his channel or it was nearing the closing date for entering the prize draw
	Additional Guidance		
	He advertised more on that day		B1
	His content was better on that day		B1
	More people subscribed on that day after hearing about the prize draw		B1
	More people subscribed on that day		B0
	It went viral without giving a valid reason		B0
	The rest of the data could be wrong		B0
	The number of subscribers was on the rise		B0
	More people online that day		B0
	Nik could have actually gained that many on that day		B0
	Outliers/Anomalies do happen		B0
	It could have been a lucky day		B0

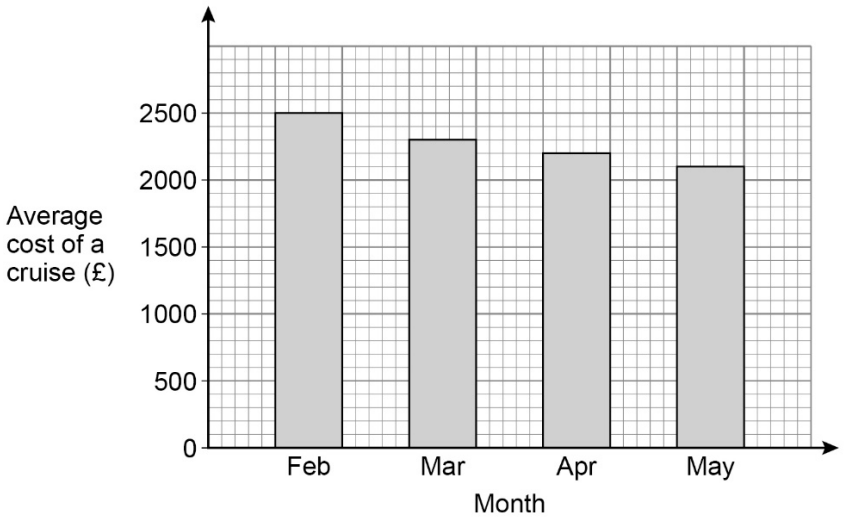
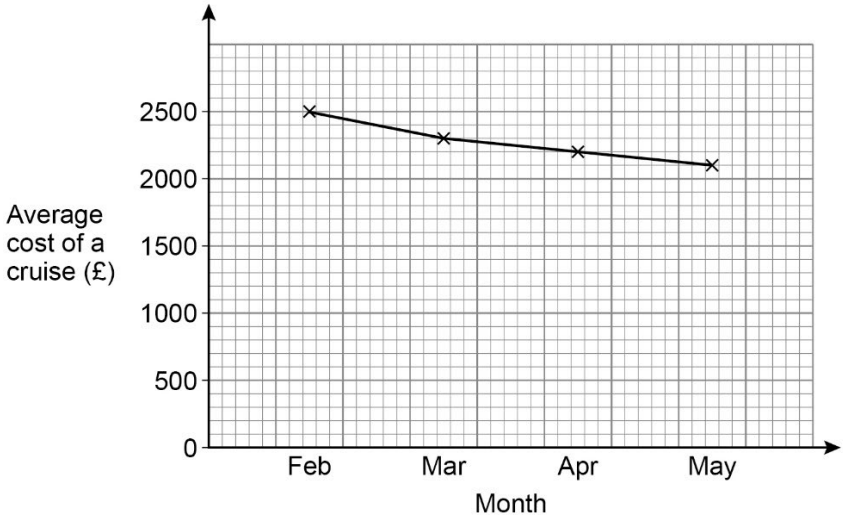
Q	Answer	Marks	Comments
6(c)(iii)	Two statements from: the mean will be lower or doesn't change the median or doesn't change the mode	B2	B1 one correct statement
	Additional Guidance		
	Do not award B2 with an incorrect statement		
	Averages must be named		
	Ignore any reference to any calculations		
	Ignore any reference to spread		

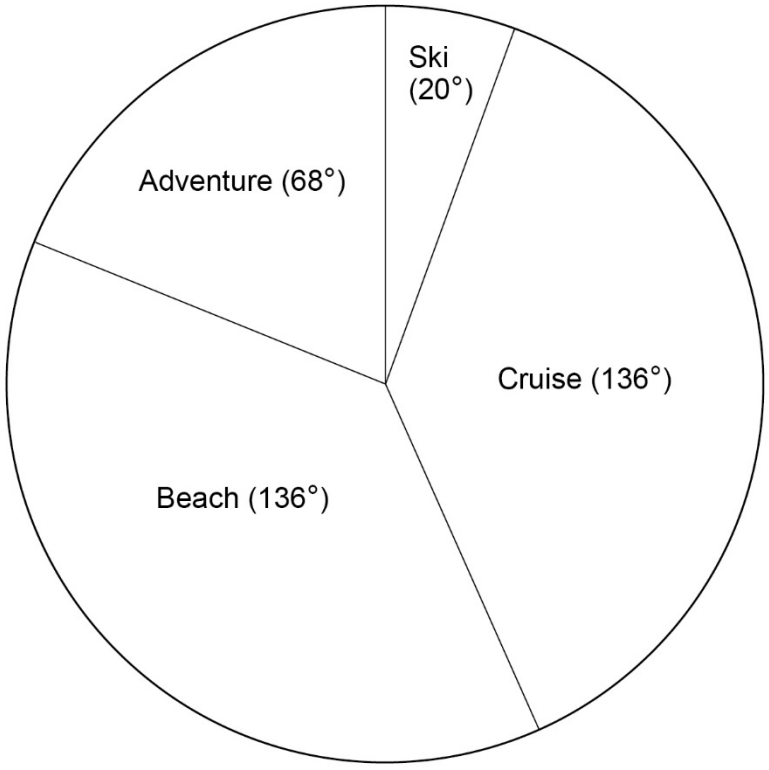
Q	Answer	Marks	Comments
6(d)(i)	[3, 3.4] or [8, 8.4]	M1	may be seen on diagram
	[3, 3.4] and [8, 8.4] and Yes	A1	
	Additional Guidance		
	Yes can be implied, eg agree, true		
	Condone £ for $ and millions for billions		
	Yes, it goes from 3 to 8		M1A1
	[8, 8.4] – [3, 3.4] = [4.6, 5.4]		M1A0

Q	Answer	Marks	Comments
6(d)(ii)	No, there's no information about the numbers of people	B1	oe eg No, it's to do with revenue
	Additional Guidance		
	No can be implied, eg false		
	No, it's not the variable It's not the variable		B1 B0

Q	Answer	Marks	Comments
6(d)(iii)	The graph does not show anything about the revenue for 2022 as only values to 2020 are plotted or The graph cannot be used to predict the value for 2022 as this would be extrapolation or The graph suggests that the value for 2022 is likely to be greater than \$20billion as the trend strongly suggests this	B1	oe
	Additional Guidance		
	Cannot tell, (the graph) might not follow the pattern		B1
	The graph does show that the value for 2022 will be greater than \$20 billion as the trend is increasing		B0

Q	Answer	Marks	Comments
7(a)(i)	(y-axis scale) doesn't start at zero	B1	oe
	Additional Guidance		
	It starts at 2000		B1
	The scale makes the differences seem bigger		B1
	It doesn't start in the right place (ambiguous)		B0

<table>
<tr><th>Q</th><th>Answer</th><th>Marks</th><th>Comments</th></tr>
<tr><td rowspan="4">7(a)(ii)</td><td>Fully correct bar chart or line graph</td><td>B2</td><td>B1
appropriate y-axis scale that reaches at least 2500, starting at zero and going up in equal increments
$\pm\frac{1}{2}$ small square tolerance</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">
</td><td>B2</td></tr>
<tr><td colspan="2">
</td><td>B2</td></tr>
</table>

<table>
<tr><th>Q</th><th>Answer</th><th>Marks</th><th>Comments</th></tr>
<tr><td rowspan="7">7(b)(i)</td><td>$\frac{5}{90} \times 360$
or $\frac{34}{90} \times 360$
or $\frac{17}{90} \times 360$
or 360 ÷ 90 or 4</td><td>M1</td><td>oe
implied by one correct angle drawn within 2° tolerance</td></tr>
<tr><td>68 or 136 or 20</td><td>A1</td><td>implied by one correct angle drawn within 2° tolerance</td></tr>
<tr><td>All angles drawn correctly:
68 and 136 and 136 and 20</td><td>A1</td><td>2° tolerance</td></tr>
<tr><td>All 4 sectors labelled appropriately</td><td>B1ft</td><td>ft their sectors with M1 awarded</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">
</td><td></td></tr>
<tr><td colspan="2">Angles may be seen in or by the table as well as in the working space</td><td></td></tr>
<tr><td colspan="2">Accept any clear indication for the labels eg S for Ski</td><td></td></tr>
<tr><td colspan="2">Ignore any frequencies written with labels</td><td></td></tr>
</table>

Q	Answer	Marks	Comments
7(b)(ii)	No and (Easy to see the most popular holidays but) does not provide information on numbers	B1	oe
	Additional Guidance		
	No can be implied, eg the pie chart won't show the numbers		B1
	Yes ticked		B0
	No, it's only one week		B0

Q	Answer	Marks	Comments
7(b)(iii)	It's only one week (of data) or More people go skiing in winter	B1	oe
	Additional Guidance		
	(One week is) not enough data		B1
	We don't know if this is a normal week		B1
	(The number of) ski holidays (sold) will vary from week to week It will vary from week to week Amounts of customers will vary from week to week		B1 B1 B0
	(Some) people don't want to go skiing in the summer You only go skiing in the winter (not true)		B1 B0

Q	Answer	Marks	Comments
8(a)	No and they're both 10	B2	B1 dogs = 10 or cats = 10
	Additional Guidance		
	No and they're both the same		B2

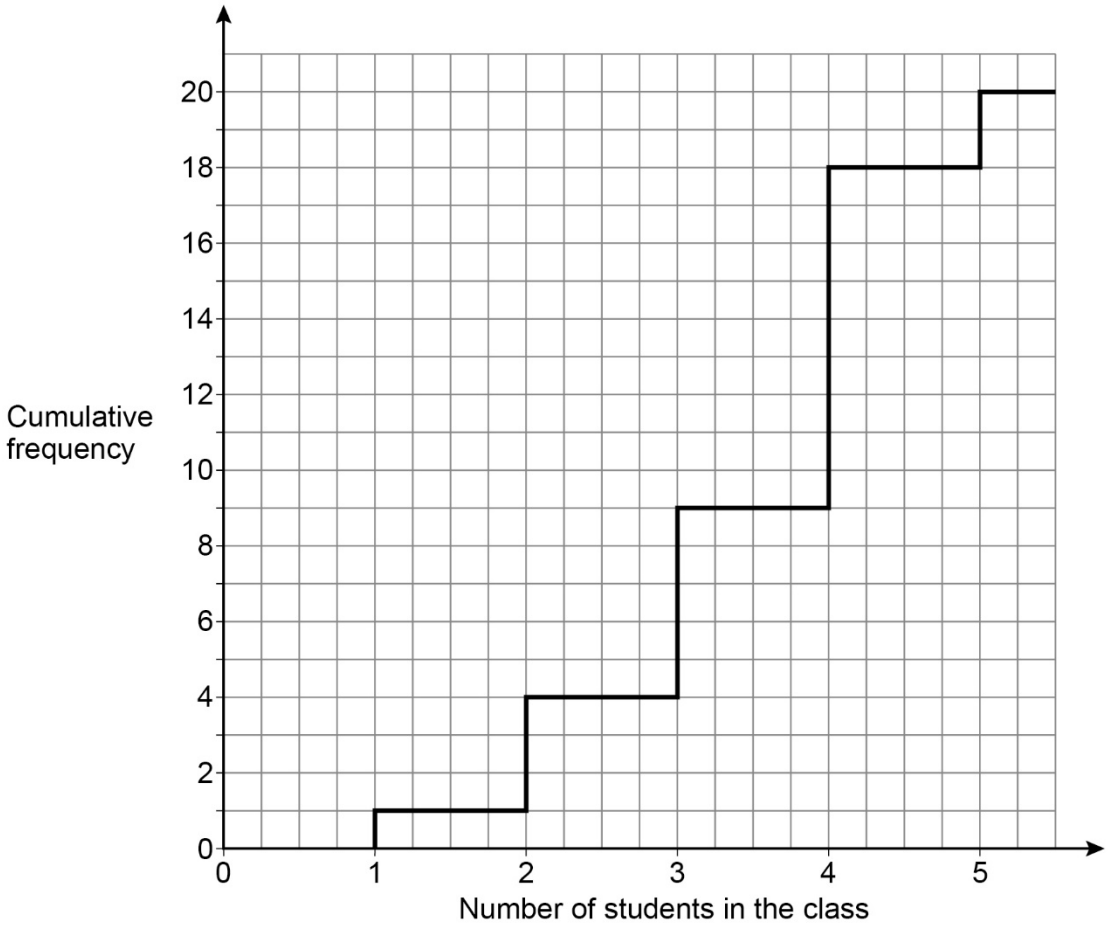
Q	Answer	Marks	Comments
8(b)	$\frac{17}{32}$ or 0.53 or better or 53% or better	B2	oe B1 17 or 32
	Additional Guidance		
	Ignore attempts to simplify or convert to decimal or percentage after correct answer seen		

Q	Answer	Marks	Comments
8(c)	$\frac{3}{10}$ or 0.3 or 30%	B2	oe B1 $\frac{n}{10}$ where n is an integer and [1, 9]

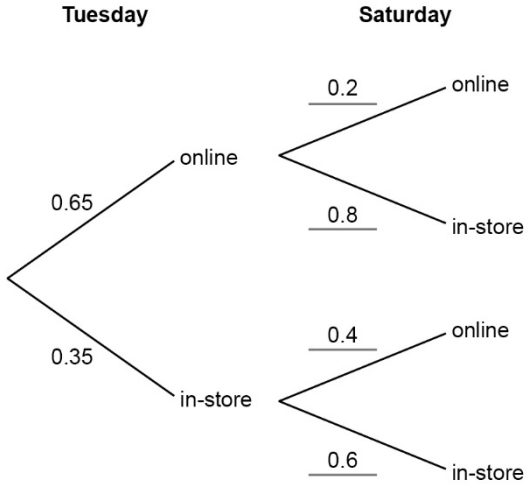
Q	Answer	Marks	Comments
9(a)	$\frac{23310}{21000}$ (× 100) or 1.11	M1	oe
	111	A1	
	Additional Guidance		
	Table takes precedence over working space		

Q	Answer	Marks	Comments
9(b)	$\frac{116}{100}$ (× 21 000) or 22 890 ÷ 109 (× 116) or 21420 ÷ 102 (× 116) or 23 310 ÷ their 111 (× 116) or 210 (× 116)	M1	oe ft their 9(a)
	24 360	A1ft	
	Additional Guidance		
	If ft answer is a decimal accept rounding or truncating to the nearest pound or better		

Q	Answer	Marks	Comments
10(a)	9, 18, 20 in correct order	B1	

Q	Answer	Marks	Comments
10(b)	Fully correct cumulative frequency step polygon	B2ft	ft their cumulative frequencies from 10(a), must be increasing B1ft at least three points from (1, 1), (2, 4), (3, 9), (4, 18), (5, 20) plotted
	Additional Guidance		
			

Q	Answer	Marks	Comments
10(c)	Yes and median = 4 or Yes and less than half her classes had 3 or fewer students or Yes and 9 of her classes had 3 or fewer students and 9 < 10(.5)	B1ft	oe ft their cumulative frequency step polygon, must be increasing
	Additional Guidance		
	Condone reading across at 10 for the median		
	Yes because the 10(.5)th is 4		B1
	Yes and most are above 3		B1
	Yes and the median is 4 with 9 classes (use of mode)		B0
	Yes, the median is more than 3		B0
	Yes and 9 of her classes had 3 or fewer students		B0
	Answers from cumulative frequency diagrams (other than a cumulative frequency step polygon)		B0

Q	Answer	Marks	Comments
11(a)	Fully correct tree diagram	B2	oe fraction, decimal or percentage B1 0.2 and 0.8 or 0.4 and 0.6 in the correct places on the diagram
	Additional Guidance		
			
	Ignore any products		

Q	Answer	Marks	Comments
11(b)	0.65 × their 0.2 or 0.13 or 0.65 × their 0.8 or 0.52 or 0.35 × their 0.4 or 0.14 or 0.35 × their 0.6 or 0.21	M1	oe may be seen on diagram
	their 0.13 + their 0.52 + their 0.14 or 1 – their 0.21	M1dep	oe
	0.79	A1ft	oe ft their probabilites
	Additional Guidance		
	their probabilities must be between (0, 1)		

<table>
<tr><th>Q</th><th>Answer</th><th>Marks</th><th>Comments</th></tr>
<tr><td rowspan="8">12</td><td>One frequency:
8 or 10 or 15 or 3</td><td>B1</td><td>implied by 36
implied by 80, 300, 750 or 210
may be seen on diagram</td></tr>
<tr><td>One midpoint:
10 or 30 or 50 or 70</td><td>B1</td><td>implied by 80, 300, 750 or 210</td></tr>
<tr><td>One midpoint × frequency:
(8 × 10 =) 80
or (10 × 30 =) 300
or (15 × 50 =) 750
or (3 × 70 =) 210</td><td>M1dep</td><td>oe
implied by 1340
dep on B2</td></tr>
<tr><td>Sum of their products ÷ sum of their frequencies
or
$\frac{1340}{36}$</td><td>M1dep</td><td>oe
dep on M1</td></tr>
<tr><td>37 or 37.2(2…) (minutes)</td><td>A1</td><td>oe</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2"><table>
<tr><th>Group</th><th>mid-point</th><th>frequency</th><th>fx</th></tr>
<tr><td>$0< m \leq 20$</td><td>10</td><td>8</td><td>80</td></tr>
<tr><td>$20< m \leq 40$</td><td>30</td><td>10</td><td>300</td></tr>
<tr><td>$40< m \leq 60$</td><td>50</td><td>15</td><td>750</td></tr>
<tr><td>$60< m \leq 80$</td><td>70</td><td>3</td><td>210</td></tr>
</table></td><td></td></tr>
<tr><td colspan="2">Ignore attempts to convert 37.2 (minutes) after correct answer seen</td><td></td></tr>
<tr><td colspan="2">37 or 37.2(2…) with no working</td><td>B1B1M1M1A1</td></tr>
<tr><td colspan="2">37 minutes 12 seconds or 37 minutes 13 seconds with no working</td><td>B1B1M1M1A1</td></tr>
</table>

Q	Answer	Marks	Comments
13(a)	$10 + 20 + 30 + 40 + 55 + 60 + 75 + 80 + 90 + 105$ or 565	M1	allow one error or omission
	56.5 or $56\frac{1}{2}$	A1	
	Additional Guidance		
	Ignore any units		
	Ignore 82.5 alongside 56.5		
	56.5 seen, followed by 56 or 57		M1A1
	56 or 57 without M1 awarded		M0A0

Q	Answer	Marks	Comments
13(b)	Double mean point plotted at (their 56.5, 82.5) and straight line of best fit passing through their double mean point	M1	$\pm\frac{1}{2}$ small square tolerance
	Double mean point plotted at (their 56.5, 82.5) and straight line of best fit passing through their double mean point and passing through (10, [92, 98]) and (105, [67, 73])	A1ft	ft their double mean point ignore anything beyond gates $\pm\frac{1}{2}$ small square tolerance
	Additional Guidance		
	No double mean point plotted		M0

Q	Answer	Mark	Comments
13(c)	**Alternative method 1 – interpolation**		
	Yes ticked and it is interpolation	B2	oe B1 it is interpolation and none of the boxes ticked
	Alternative method 2 – different types of batteries		
	Cannot tell ticked and we do not know if all the batteries are of the same type	B2	oe B1 we do not know if all the batteries are of the same type and none of the boxes ticked
	Additional Guidance		
	Ignore any non-contradictory or irrelevant statements		
	Interpolation statements		
	Yes ticked and he is predicting within/inside the range (of the data/graph)		B2
	Yes ticked and the points lie close to the line (of best fit)		B2
	Yes ticked and there is a line (of best fit at 70)		B2
	Yes ticked and it will follow the trend (at 70)		B2
	Yes ticked and the correlation should not change		B0
	Yes ticked and there's negative correlation		B0
	Different types of batteries statements		
	Cannot tell and the batteries might be different sizes		B2
	Cannot tell and the batteries might be different voltages		B2
	Cannot tell and the sample size is too small		B0

Q	Answer	Marks	Comments
14(a)	Take a greater number of samples or Increase the area (in which he counts weeds)	B1	oe
	Take samples for a variety of places on the pitch or Choose places to sample randomly	B1	oe eg spread his samples out more
	Additional Guidance		
	Ignore any non-contradictory or irrelevant statements		
	Do more than one side and choose more (than 5) places		B2
	Do more squares		B1
	Do the other side of the field		B1
	Do a different place / Do different places Do a different location on the field Do a different location / Do different locations (ambiguous)		B1 B1 B0
	Take another sample at a later date (does not make his sample more representative)		B0
	Do more fields		B0
	Count the number of weeds on the entire pitch		B0
	Take a census		B0

Q	Answer	Marks	Comments
14(b)	Chris should have checked the same places (as the first sample) or Chris shouldn't have chosen at random or Chris needs to allow the treatment time to take effect	B1	oe
	Additional Guidance		
	He shouldn't have done it the next day		B1
	He should do more than just several places Check in lots of places		B0 B0